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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,881	06/09/2000	Jeongmin Moon	3430-0105P	1734

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Birch Stewart Kolasch & Birch LLP
P O Box 747
Falls Church, VA 22040-0747

EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/589,881

Applicant(s)

MOON, JEONGMIN

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-11,14-21,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 5,12,13 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-11,14-21,23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-4, 6-11 and 14-21, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new limitation "light reflected along an orthogonal direction to the liquid crystal display device is maximized" in the amended claims 1, 10, 11 and 21 is not disclosed in the original specification.

Besides, the original specification discloses ONLY

- A light distribution of the directed light is substantially uniform along the length of the reflector, and such that the directed light is substantial perpendicular to reflector (page 3 lines 15-18).
- An arrangement of these convex portions can be varied according to the amount of the emitting light to produce a uniform emitting light distribution (page 4 lines 27-29).
- This convex portion of the lower surface, which can alter the incident angle of the reflected light to an angle close to 90°, is relatively easy to manufacture.

- A uniform distribution may be achieved by increasing a size of the convex portions with increasing distance from the light source (page 6, lines 18-20).
- Since the convex portions have substantially vertical surfaces, the light from the light source can be directed to the panel perpendicularly [not maximization] (page 7 lines 18-20).

Claims 2-4, 6-10, 14-20, 23 and 24 are rejected since they depend on the infinite claims.

2. Claims 1-4, 6-11 and 14-21, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The new limitation "light reflected along an orthogonal direction to the liquid crystal display device is maximized" in the amended claims 1, 10, 11 and 21 is not enable to get since there is no data proof with the designed configuration, which will get "the maximization of the light in direction orthogonal to the liquid crystal display device" although this is a conventional goal of the convex portions forming on the light guide.

For example:

Shinji et al. (US6259854B1) show in Figs. 5-7 the data proof of the reflection efficiency according to H/W , where H is height of convex portions and W is width of convex portions.

Claims 2-4, 6-10, 14-20, 23 and 24 are rejected since they depend on the infinite claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 6-11 and 14-21, 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinji et al. (US6259854B1).

In regard to claims 1, 2 and 10, Shinji et al. (Figs. 1 a-15b) disclose

- an auxiliary light source device comprising: a light source 1;
- a light reflecting member (reflector 4) which guides light from the light source into the light directing member,

- a light directing member for directing incident light from the light source toward the reflector, the light directing member including
 - a lower surface having a plurality of convex portions extending from the lower surface, each of the convex portions having a substantially planar surface which is substantially parallel to the lower surface, and an angle between the lower surface and a surface connecting the planar surface of the convex portion is about 90° since slope angle $\delta = 0^\circ$ or 2° (col. 7 lines 5-6).

wherein light reflected along an orthogonal direction L2/L3 to the liquid crystal display device is maximized according to Figs. 5 ($\delta = 0^\circ$) or Fig. 6 ($\delta = 2^\circ$) or Fig. 7 ($\delta = 5^\circ$).

In regard to claims 21 and 24, Shinji et al. (Figs. 1 a-1 5b) disclose an auxiliary light source device comprising:

- a light source extending along a width of the reflector to emit light along a length of the reflector;
- a light directing device located above the reflector and adjacent to the light source to direct light from the light source to the reflector such that a light distribution of light directed by the light directing device is substantially uniform along the length of the reflector, and such that the directed light is substantially perpendicular to the reflector;
- the light-directing device includes a plurality of portions extending toward the reflector at a 90° angle such that the light reflected along an orthogonal direction

L2/L3 to the liquid crystal display device is maximized according to Figs. 5 ($\delta = 0^\circ$) or Fig. 6 ($\delta = 2^\circ$) or Fig. 7 ($\delta = 5^\circ$), spacing between the portions decreasing along the length of the reflector with increasing distance from the light source.

In regard to claims 11 and 14, Shinji et al. (Figs. 1 a-15b) disclose an auxiliary light source device comprising :

- an upper reflective surface to reflect impinging light above a certain incidence angle;
- a lower reflective surface having a plurality of convex portions extending toward the reflector to direct light from the auxiliary light source device to the reflector;
- an entry surface connecting the upper and lower reflective surfaces through which light from a light source enters,
 - each convex portion includes a planar portion and sides connecting the planar portion with the lower reflective surface, and an angle between the lower surface and the sides is 90° since slope angle $\delta = 0^\circ$ or 2° (col. 7 lines 5-6).
 - light reflected along an orthogonal direction L2/L3 to the liquid crystal display device is maximized according to Figs. 5 ($\delta = 0^\circ$) or Fig. 6 ($\delta = 2^\circ$) or Fig. 7 ($\delta = 5^\circ$).
 - a planar portion is substantially parallel to the lower reflective surface.

In regard to claims 3 and 19, Shinji et al. (Fig. 15b) disclose an auxiliary light source device, wherein spacing between the convex portions decreases with increasing distance from the light source (Fig. 15b).

In regard to claims 4, 20 and 23, Shinji et al. (Fig. 15a) disclose the spacing between adjacent convex portions of lower surface of the light-directing member is $100\mu\text{m}$ (Fig. 15a) that is in a range of $10\mu\text{m}$ to $1000\mu\text{m}$ and a width W of each portion is from $20\mu\text{m}$ to $200\mu\text{m}$ (abstract), which covers a width less than $100\mu\text{m}$.

In regard to claims 6 and 15, Shinji et al. (Fig. 1 b) disclose the planar surface of each convex portion has a cross-section of substantially circular shape (Fig. 1 b).

In regard to claims 7 and 16, Shinji et al. (Fig. 1f) disclose the planar surface of each convex portion has a cross section of rectangular shape (Fig. 11f),

In regard to claims 8 and 17, Shinji et al. (Fig. 1 d or 1 g) disclose the plane surface of the plurality of convex portions has a bar shape extending perpendicular to a direction of light propagation in the light directing member 11 and along substantially an entire width of the reflective LCID device.

In regard to claim 9, Shinji et al. (Fig. 15b) disclose (Table 1) a distance/height between the lower surface and the planar surface of each convex portion is $12\mu\text{m}$ and $20\mu\text{m}$ that is less than $50\mu\text{m}$.

In regard to claim 18, Shinji et al. (Fig. 15b) disclose a plurality of convex portion extending from the lower surface to ensure an uniform distribution of light along a length of the device.

Response to Arguments

Applicant's arguments filed on March 26, 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

- A. Shinji et al. fail to disclose an angle between a lower surface and surface connecting the planar surface if the complex portion of about 90° ($\delta = 0^\circ$).
- B. Shinji et al. fail to disclose the maximization of the light in direction orthogonal to the liquid crystal display device.

Examiner's responses to Applicants' ONLY arguments are follows:

- A. Shinji et al. disclose (Fig. 5, col. 7 lines 5-6) an angle between a lower surface and surface connecting the planar surface if the complex portion of about 90° ($\delta = 0^\circ$) or rectangular portions.
- B. Shinji et al. disclose (Figs. 5-7) the maximization of the light L2/L3 in direction orthogonal to the liquid crystal display device. Figs. 5-7 show the data proof of

the reflection efficiency according to H/W , where H is height of convex portions and W is width of convex portions. Figs. 6 and 7 show the maximization of the light $L2$ in direction orthogonal to the liquid crystal display device according to $H/W=0.15$.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

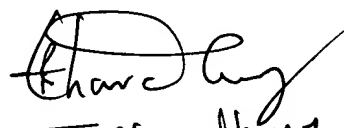
Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Art Unit: 2871

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

chn
April 11, 2003


T. Chandhury
Primary Examiner
Tech. Center 2800